UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,766	12/16/2003	Bong Jun Hwang	P-0610	4098

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EXAMINER
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ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>07 May 2007</u>.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-20,22-34 and 36-40</u> is/are pending in the application.

 4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-20,22-34 and 36-40</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

 a)☐ All b)☐ Some * c)☐ None of:

  1.☐ Certified copies of the priority documents have been received.

  2.☐ Certified copies of the priority documents have been received in Application No. _____.

  3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

 * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

1.   This office action, in response to the amendment filed 5/7/2007, is a final office

action.

Response to Arguments

2.   Applicant's arguments with respect to claims 1-20 and 22-34 have been

considered but are moot in view of the new grounds of rejection.

3.   The previous rejections under 35 USC 101 and 112, first paragraph and the

objections to the claims and the drawings have been withdrawn. New claim objections

are stated below.

Claim Objections

4.   Claims 8 and 23 are objected to because of the following informalities: The term

"despreading" is misspelled on line 3 of claim 8. The word "the" is repeated twice in

lines 2 and 3 of claim 23. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 1-20, 22-34 and 36-40 are rejected under 35 U.S.C. 103(a) as being

unpatentable over the instant application's disclosed prior art (specifically figure 3) in

view of Kim et al (GB 2370725 A).

Regarding claim 1, the instant application's disclosed prior art discloses a

method of using the circuit shown in figure 3. The speed of a moving transmitting end is

measured in the Doppler estimator 100 (paragraphs 17 and 19). The signal searching

process of the receiver is controlled according to the measured moving speed of the

transmitting end. The instant application's disclosed prior art does not disclose

measuring a signal-to-noise ratio (SNR) of the signal transmitted from the transmitting

end and controlling an accumulation slot number to be set by a non-coherent

accumulator according to the SNR. Kim discloses a CDMA receiver shown in figure 3

and 4. The received signal is despread 24A and coherently accumulated 26A. The

coherent accumulation is further processed and provided to a non-coherent

accumulator. The non-coherent accumulator is controlled by a controller (figures 3 and

4 and page 9, lines 11-17). The slot length is controlled by the controller and is

determined based on the SNR of the signal (page 13, lines 21-27 and page 15, lines 11-

17). The disclosed search method of the CDMA signals maximizes the performance of a

receiver when the signal is searched and the SNR is measured (abstract). For this

reason, it would have been obvious for one of ordinary skill in the art at the time of the

invention to combine the teachings of Kim into the method of using the circuit of the

instant application's disclosed prior art.

Regarding claim 2, the transmitter is a mobile.

Regarding claim 3, the instant application discloses the Doppler estimator 100 measures the transmitting end's moving speed.

Regarding claim 4, Kim discloses the SNR is measured (abstract).

Regarding claims 5, 6 and 37, the instant application's disclosed prior art discloses weighting the accumulators (paragraphs 19 and 20).

Regarding claim 7, Kim discloses weighting the symbols according to the received signal quality of the symbol (page 9, lines 7-17).

Regarding claim 8, the instant application's disclosed prior art discloses a method of using the circuit shown in figure 3. The received signals are despread in despreader 20. The despread signals are accumulated in accumulators 30 and 40 and squared in squarers 50 and 60. The squared signals are accumulated according to non-coherent multi-slot accumulation in accumulator 80. The speed of a moving transmitting end is measured in the Doppler estimator 100 (paragraphs 17 and 19). The signal searching process of the receiver is controlled according to the measured moving speed of the transmitting end. The instant application's disclosed prior art does not disclose measuring a signal-to-noise ratio (SNR) of the signal transmitted from the transmitting end and controlling an accumulation slot number to be set by a non-coherent accumulator according to the SNR. Kim discloses a CDMA receiver shown in figure 3 and 4. The received signal is despread 24A and coherently accumulated 26A. The coherent accumulation is further processed and provided to a non-coherent accumulator. The non-coherent accumulator is controlled by a controller (figures 3 and 4 and page 9, lines 11-17). The slot length is controlled by the controller and is

determined based on the SNR of the signal (page 13, lines 21-27 and page 15, lines 11-17). The disclosed search method of the CDMA signals maximizes the performance of a receiver when the signal is searched and the SNR is measured (abstract). For this reason, it would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of Kim into the method of using the circuit of the instant application's disclosed prior art.

Regarding claim 9, the receiver is a bases station and the transmitter is a mobile.

Regarding claim 10, the instant application's disclosed prior art shows the received channels are I and Q channel signals in figure 3.

Regarding claims 11 and 12, the instant application's disclosed prior art discloses the Doppler estimator 100 measures the transmitting end's moving speed.

Regarding claim 13, Kim discloses the SNR is measured (abstract).

Regarding claims 14 and 16-20, the instant application's disclosed prior art discloses weighting the accumulators (paragraphs 19 and 20).

Regarding claim 15, Kim discloses weighting the symbols according to the received signal quality of the symbol (page 9, lines 7-17).

Regarding claim 22, the instant application's disclosed prior art discloses a method of using the circuit shown in figure 3. The received signals are despread in despreader 20. The despread signals are accumulated in accumulators 30 and 40 and squared in squarers 50 and 60. The squared signals are accumulated according to non-coherent multi-slot accumulation in accumulator 80. The speed of a moving transmitting end is measured in the Doppler estimator 100 (paragraphs 17 and 19). A memory

stores the output signals 90. The signal searching process of the receiver is controlled

according to the measured moving speed of the transmitting end. The instant

application's disclosed prior art does not disclose measuring a signal-to-noise ratio

(SNR) of the signal transmitted from the transmitting end and controlling the signal

search according to the SNR. Kim discloses a CDMA receiver shown in figure 3 and 4.

The received signal is despread 24A and coherently accumulated 26A. The coherent

accumulation is further processed and provided to a non-coherent accumulator. The

non-coherent accumulator is controlled by a controller (figures 3 and 4 and page 9, lines

11-17). The slot length is controlled by the controller and is determined based on the

SNR of the signal (page 13, lines 21-27 and page 15, lines 11-17). The disclosed

search method of the CDMA signals maximizes the performance of a receiver when the

signal is searched and the SNR is measured (abstract). For this reason, it would have

been obvious for one of ordinary skill in the art at the time of the invention to combine

the teachings of Kim into the method of using the circuit of the instant application's

disclosed prior art.

Regarding claim 23, the instant application's disclosed prior art shows the

received channels are I and Q channel signals in figure 3.

Regarding claims 24-27, the instant application's disclosed prior art discloses

weighting the accumulators (paragraphs 19 and 20).

Regarding claims 28, 29 and 34, Kim discloses weighting the symbols according

to the received signal quality of the symbol (page 9, lines 7-17).

Regarding claim 30, the instant application's disclosed prior art discloses a first and second accumulator as shown in figure 3.

Regarding claims 31 and 32, the instant application's disclosed prior art discloses a first and second squaring circuit as shown in figure 3.

Regarding claim 33, the instant application's disclosed prior art discloses an adder adding the energy values as shown in figure 3.

Regarding claim 36, Kim discloses the performance of the receiver is maximized by controlling the accumulators based on the SNR.

Regarding claims 38 and 39, the instant application's disclosed prior art discloses the speed of a moving transmitting end is measured in the Doppler estimator 100 (paragraphs 17 and 19). A control signal controls the accumulation slot number of the non-coherent accumulator (paragraph 19 and figure 3). When the speed of the transmitting device changes, the control signal will be adjusted.

Regarding claim 40, Kim discloses the performance of the receiver is maximized by controlling the accumulators based on the SNR.

Conclusion

Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.
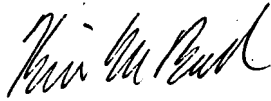
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M. Burd whose telephone number is (571) 272-3008. The examiner can normally be reached on Monday - Friday 9 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Payne can be reached on (571) 272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kevin M. Burd
7/16/2007   **KEVIN BURD**
                                 PRIMARY EXAMINER